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Recommended citation(APA):
Pope, R. R., Norman, A., Schram, B., & Orr, R. M. (2017). *A detailed analysis of serious personal injuries suffered by full time and part time soldiers*. World Confederation for Physical Therapy Congress , Cape Town, South Africa.

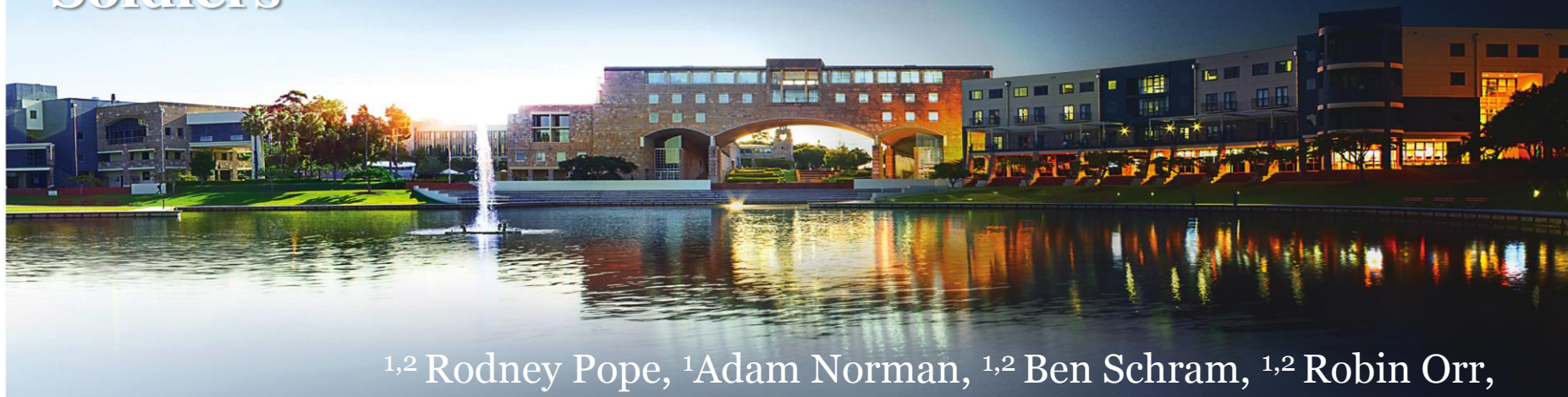
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A Detailed Analysis of Serious Personal Injuries Suffered by Full Time and Part Time Soldiers



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Introduction

- Occupational requirements of military personnel are of vigorous description [1]

Operations [2, 3, 4]	Physical Training [5, 6]
<ul style="list-style-type: none"> Heavy lifting Loaded marches Dismounted patrol Lengthy sustained awkward postures Direct contact with enemy 	<ul style="list-style-type: none"> Running Resistance training Combat training Loaded marches <div data-bbox="1429 546 1497 829" style="font-size: 4em; line-height: 1; padding: 0 10px;">}</div> <div data-bbox="1545 644 1854 742"> <p>6:00 – 18:45</p> <p>5000 kcals/day</p> </div>

- Physical and environmental stressors lead to Serious Personal Injuries (SPIs) [1]

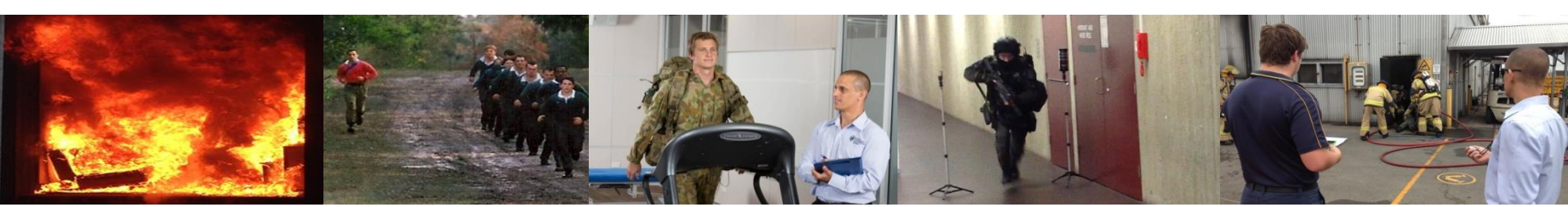




Introduction

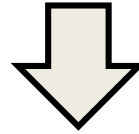
- The Australian Army is composed of Regular Army (ARA) and Army Reserves (ARES) [7]
- ARA and ARES are exposed to same fitness assessments, field exercises and are deployed on same operations [7, 8]
- SPIs negatively effect ARA and ARES during physical training, operations and ultimately financially [3, 5, 9]





Aims

- Further analyse proportions of reported work health and safety incidents resulting in SPIs among ARA and ARES personnel



- Comparative analysis of the activities, mechanisms, agencies and locations of serious personal injuries suffered by ARA and RES personnel will hope to guide future risk management efforts



Methods

- Retrospective cohort study: data from Defence Injury and Incident database – 01 Jul 2012 – 30 Jun 2014
 - Incident type, service type (ARA/ARES), incident location, age, incident summary, nature of injury, bodily location, activity description, mechanism description, agency description and further breakdown of agency description
- ARA and RES population sizes obtained via Department of Defence Records
- Approvals: Ethics - ADHREC (LERP14-024) & BUHREC (RO1907): Release - JHC





Methods

- Data was manually cleaned to ensure only records meeting inclusion and exclusion criteria were retained

Inclusion	Exclusion
<ul style="list-style-type: none"> • RA or ARES personnel • Date of incident from 01/07/2012 to 30/06/2014 • Involved SPI 	<ul style="list-style-type: none"> • Non-Human member of the military (e.g., canine) • Military service other than Army • Missing or incomplete data in database report • Military service from a foreign defence service

- Remaining Data then entered into SPSS to compare the prevalence of SPIs amongst ARA & ARES personnel against the following variables;
 - Activity description, mechanism of injury, and agency description



Methods

- **SPIs per 100 personnel per year** = Total SPIs per service type / Mean population of corresponding service type x 100
- **SPIs per 100 person-years of active service** = Raw number of SPIs per service type / Total years (corresponding service type) of active service to the military x 100
 - RES: **232 days equal full time service**





Results

- Incidents or Injuries
 - ARA: 45.8 incidents or injuries per 100 personnel per year
 - ARES: 10.6 incidents or injuries per 100 personnel per year
- SPIs (ARA, n= 489; ARES, n= 44)
 - ARA: 1.7 SPIs per 100 personnel per year
 - ARES: 0.3 SPIs per 100 personnel per year

Mechanism	ARES <i>(Per 100 person years of active service)</i>	Mechanism	ARA <i>(Per 100 person years of active service)</i>	Mechanism	Combined <i>(Per 100 person years of active service)</i>
Fall	0.23	Fall	0.21	Fall	0.21
Contact with moving or stationary object	0.23	Contact with moving or stationary object	0.17	Contact with moving or stationary object	0.18
Musculoskeletal stress while carrying, lifting or putting	0.15	Musculoskeletal stress while carrying, lifting or putting	0.13	Musculoskeletal stress while carrying, lifting or putting	0.13
Motor Vehicle Accident	0.06	Motor Vehicle Accident	0.12	Motor Vehicle Accident	0.12
Other and multiple mechanisms of incident	0.06	Exposure to environmental heat	0.06	Exposure to environmental heat	0.06

Activity Description	ARES <i>(Per 100 person years of active service)</i>	Activity Description	ARA <i>(Per 100 person years of active service)</i>	Activity Description	Combined <i>(Per 100 person years of active service)</i>
Combat Training	0.13	Combat Training	0.12	Combat Training	0.12
Physical Training	0.13	Physical Training	0.11	Physical Training	0.11
Manual/ Materials Handling	0.11	Passenger in vehicle	0.05	Manual/ Materials Handling	0.05
Walking	0.09	Operational	0.05	Passenger in vehicle	0.05
Marching	0.09	Manual/ Materials Handling	0.04	Operational	0.04
				Walking	0.04

Agency	ARES <i>(Per 100 person years of active service)</i>	Agency	ARA <i>(Per 100 person years of active service)</i>	Agency	Combined <i>(Per 100 person years of active service)</i>
Other and not specified	0.43	Other and not specified	0.29	Other and not specified	0.30
Sporting equipment	0.06	Other adults	0.10	Other adults	0.09
Uneven ground	0.04	Sporting equipment	0.05	Sporting equipment	0.05
Other outdoor equipment	0.04	Weather	0.04	Weather	0.03
Agency not known	0.04	Uneven ground	0.03	Uneven ground	0.03



Conclusion

- ARA members report more SPIs than ARES members
- Data suggests that ARA and ARES members suffer SPIs through similar:
 - Activities
 - Mechanisms
- ...but agencies may vary





CLINICAL APPLICATION

- SPI prevention strategies would benefit from a focus on falls prevention, musculoskeletal resilience and specific mechanisms to reduce SPI during physical and combat training.
- Future research should examine the effects of evidence based interventions aimed at reducing SPI amongst full-time and part-time soldiers.





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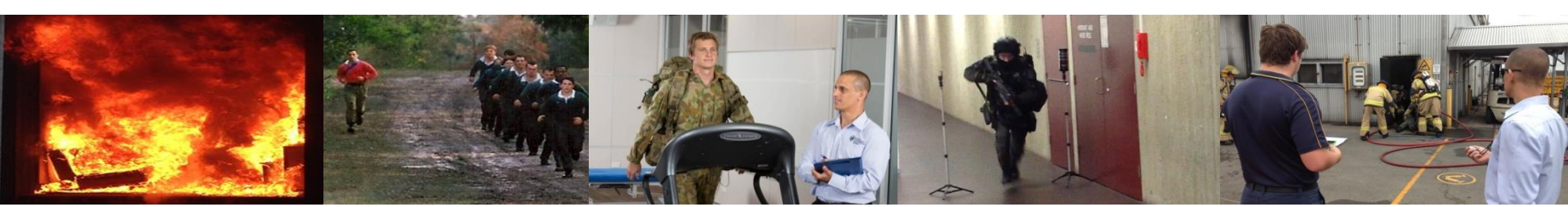




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Questions

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